

Hind wing yellowish buff, semivitreous on disc, a broken submarginal dusky line.

♂ (ab. *sordida*). Black sealing much intensified, almost swamping entirely the ground-colour: hind wings suffused entirely with grey.

♀. Similar to ♂, but deeper golden-buff ground-colour and varying much in extent of black sealing; ♀ (ab. *sordida*) entirely dark brown, nervures blackish.

Length of fore wing, ♂ 16-17, ♀ 20-22 mm.; expanse, ♂ 40-42, ♀ 46-52 mm.

2 ♂♂, 8 ♀♀ (1 ♂, 1 ♀, ab. *sordida*) bred, "Junin, Andes of Peru, 1400 ft."

33. *Palustra postflavida*, sp. n.

♀. Antennæ dark brown; head and thorax brown sprinkled with yellowish hairs; abdomen above blackish brown with golden-yellow rings, basal segments with long brown hairs, anal tuft buffy-orange.

Fore wing amber-brown, very sparsely sprinkled with paler scales, two postmedian darker brown shadow bands, an arrow-shaped black discocellular stigma.

Hind wings with only one postdiscal darker band.

Length of fore wing 25 mm.; expanse 57 mm.

1 ♀ bred, "Junin, Andes of Peru, 14,000 ft." (pupa rufous-brown, broad, and truncate).

LVII.—Notes on some Parasitic Nematodes.

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I.—ON THE GENUS *WELLCOMIA*, SAMBON, AND A NEW SPECIES OF THAT GENUS.

Wellcomia samboni, sp. n.

Host: hairy porcupine (*Coendou* [*Sphingurus*] *villosus*) *.

Position: intestine.

Locality: Paraguay. [The animal had been in captivity in the Zoological Society's Gardens, London, for thirteen months.]

The material upon which this note is based was collected

* More correctly *C. conip*, Desm.

by Dr. L. W. Sambon in 1907. For the opportunity of examining it the writer is indebted to him and to the Director-in-Chief, Wellcome Bureau of Scientific Research. Thanks are also due to Mr. R. J. Ortlepp, of the Prosectorial Department of the Zoological Society, for kindly supplying some information from the records of the Society.

This interesting form is very closely related to the *Oxyuris evoluta*, v. Linst., described by Smith (1908) and by Hall (1916) from *Erethizon dorsatum* and *E. epixanthum*. v. Linstow's (1899) specimens from *Acanthion brachyura* seem to have been immature, and his description is so brief that it is difficult to be certain whether those of the later authors were of the same species. Smith's specimens were also immature. The American authors, however, have described the presence of cervical alæ, while v. Linstow mentions a spindle-shaped swelling of the cuticle anteriorly, which is probably another interpretation of the same structure.

In the present material not only are the alæ apparently absent, but no cuticular swelling can be detected. Unfortunately the material consists of females only, and the specific characters depend mainly upon measurements, which can best be given in the form of a table. Most of the differences in dimensions between *W. samboni* and *Oxyuris evoluta* might be due merely to individual variation; but, besides the absence of cervical alæ, the more anterior origin of the characteristic vaginal outgrowth and its much greater length in the older females, and the somewhat larger dimensions of the eggs, appear to be valid specific characters. In the absence of a fuller description of v. Linstow's original material, therefore, we may regard the form under consideration as distinct from *O. evoluta*. It may be mentioned here that the intestinal dilatations described by Hall do not seem to be constant in magnitude and position, but vary considerably, in *W. samboni*.

Sambon (1907 *a* & *b*), under the name of *Wellcomia mitchelli*, briefly described a form from the Cape jumping-hare (*Pedetes caffer*). Here again, unfortunately, the description had to be based on females only*, and the measurements indicate no real difference between *W. mitchelli* and *W. samboni* (see table below). The wide differences of host and geographical distribution, however (unless, of course, the infection had been acquired in captivity), seem to justify the assumption that the species are not identical.

* Dr. Sambon believes that a male was seen, but was unhappily lost. He thinks it had a very long slender tail, but no other details are available.

Dr. Sambon has most kindly lent me, and allowed me to reproduce, the accompanying figure (fig. 1) of *W. mitchelli*, which has not hitherto been published.

Fig. 1.



Wellcomeia mitchelli. Female, lateral view.
(Drawing kindly lent by Dr. L. W. Sambon.)

The following table shows certain measurements (in millimetres) of the females of the three species referred to, the figures for *W. evoluta* being those given by Hall (1916):—

	<i>mitchelli</i> .	<i>evoluta</i> .	<i>samboni</i> .
Total length	12-15	9-18	8.9-13.5
Maximum thickness .....	....	Over 1.0	0.67-1.0
Diameter of head .....	....	0.1-0.19	0.08-0.1
Length of tail*	3-4	1.72-2.58	1.9-4.0
Distance from ant. end to:			
(1) posterior end of oesophagus (excluding bulb) ..	....	0.895-1.065	0.75-0.82
(2) nerve-ring .....	....	0.095-0.155	0.13
(3) base of vaginal outgrowth ..	2-3.5	4-5	1.1-2.1
Maximum diam. of oesophagus ..	....	0.17-0.185	0.17-0.19
Oesophageal bulb, length ....	....	0.225-0.275	0.2
" " thickness ..	....	0.29-0.345	0.25
Vaginal outgrowth, length ..	2-3	Up to 1.9	1.2-2.9
" " max. thickness ....	....	0.225	0.17-0.44
Ova, measurements	0.060-0.065	0.055-0.065	0.065-0.075
	X	X	X
	0.028-0.032	0.025	0.03
Number of turns of spiral marking on tail	[17 in figure]	18-24	14-20

* The measurement here given is the distance from the anus to the tip of the tail.

From the presence of a vaginal outgrowth ("conical ovipositor" of Sambon) and of a long, spirally ornamented tail in the female it seems safe to infer that all the three forms here mentioned should be placed in the same genus; and, since these features, taken together, are highly characteristic, we may retain the generic name *Wellcomeia**, *W. mitchelli*, Sambon, being the genotype.

Unfortunately our knowledge of the male is confined at present to *W. evoluta*, as described by Hall (1916). In that species there are in the male one pair of adanal and one pair of postanal papillæ, a single, short, imperfectly chitinated spicule, and a "flask-shaped" accessory piece. Slight alar membranes extend between the adanal and postanal papillæ of each side, and behind the postanal papillæ the tail diminishes in diameter to a slender filament.

II.—A NEW SPECIES OF *ASCARIS* FROM AN ARMADILLO.

Ascaris dasypodina, sp. n.

Host: *Cabassous unicinctus* [*Dasypus gymnurus*].

Position: small intestine.

Locality: Paraguay. [The animal had been in captivity in the Zoological Society's Gardens, London, for twenty-one days.]

For the material for this description the writer is again indebted to the Director of the Wellcome Bureau and to Dr. Sambon, by whom it was collected.

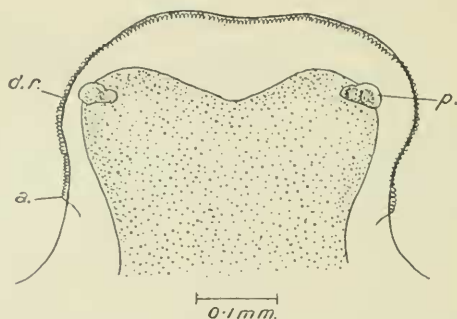
The only species of "*Ascaris*" recorded from Edentates up to the present appear to be *A. retusa*, Rud., 1819, *A. manidis*, Dies., 1851, and *A. heringii*, v. Linst., 1879. *A. retusa*, which occurs in armadillos, is, according to Schneider, a *Heterakis*. *A. manidis* and *A. heringii* (the former of which may not be an Ascarid at all) are comparatively small forms. The present material consists of a single male and three females of a large stout species which appears to be new.

The male measures about 110 mm. in length and 2.2 mm. in thickness; the females 113–155 mm. and 2.5–2.75 mm. respectively. The cuticular striations are coarse, about 0.025 mm. apart. The lips are large and fleshy, and simple in shape. There are no interlabia. Well-marked marginal denticigerous ridges are present on the lips; they end in

* The spelling of this name has been altered by some authors to *Wellcomea* or *Welcomeia*.

salient angles posteriorly (fig. 2, *a.*). The dorsal lip (fig. 2) has a transverse diameter of about 0.47 mm., and carries a pair of double papillæ at the ends of two bluntly rounded outer lobes of the pulp. In each ventro-lateral lip these two outer lobes of the pulp are unequal, the lateral lobe being considerably longer than the ventral lobe. The latter carries a large double papilla, while that of the former is small and simple. The neck is wider than the head. The œsophagus is very short (about 4 mm.), somewhat club-shaped, with a maximum thickness near the posterior end of 0.7 mm. It is muscular throughout and has no bulb or ventriculus. There are no intestinal or œsophageal cæca. The nerve-ring is situated at 1-1.15 mm. from the anterior end. The tail in

Fig. 2.

*Ascaris dasypodina*. Dorsal lip, external aspect.

a., posterior angle of dentigerous ridge; *d.r.*, dentigerous ridge;
p., papilla.

both sexes is bluntly rounded, and carries a small terminal spike.

In the male the caudal end is curled ventrally in the usual manner. The tail is extremely short (0.15 mm.). The spicules are equal and short, measuring 1.25 mm. in length. Owing to the fact that only one male is available, it has not been found possible to obtain a ventral view of the caudal end, but, as far as can be made out, there are nine pairs of postanal papillæ, of which six pairs are subventral and lie close together in the short space between the cloaca and the tail-spike; two pairs are laterally situated at about the level of the cloaca, and of these the anterior is considerably larger

than the posterior; and in addition to these there appears to be a subdorsal pair at the extremity of the tail. There are at least thirty-three pairs of preanal papillæ, arranged in a close series on either side of the ventral surface. These have rounded granular pulps, and are easily observed.

In the female the tail measures about 0·5 mm. in length. The vulva is situated at, roughly, the anterior third of the body—at 50 mm. from the anterior end in a specimen 155 mm. long, and at 30 mm. in a specimen 113 mm. long. The vagina, in the 113 mm. specimen, runs forward for about 6 mm., then bends sharply back upon itself and widens rapidly into the unpaired portion of the uterus. This runs back for a distance of about 12 mm. from the bend before giving off the two uterine branches. Each of these, just before its junction with the unpaired portion, has a slight spindle-shaped swelling. The branches of the uterus merely follow a somewhat sinuous course for the greater part of their length, but posteriorly they form one or two anteriorly-directed loops. They pass into the oviducts at about 26 mm. from the posterior end of the worm. The ovarian tubes are slender and greatly convoluted, their coils extending posteriorly almost to the extremity of the body, and anteriorly to within 22 mm. of the head-end. Their terminal portions are posterior.

The eggs are roundish-oval, with a thick shell having a granular surface-pattern and measuring $0\cdot07\text{--}0\cdot875 \times 0\cdot065\text{--}0\cdot07$ mm. Many of them contain a fully-formed embryo, but others taken from the unpaired portion of the uterus show only segmentation-stages.

III.—NOTE ON TWO SPECIES OF *PORROECUM* FROM BIRDS

[*P. ensicaudatum* (Zeder, 1800) and *P. semiteres* (Zeder, 1800)].

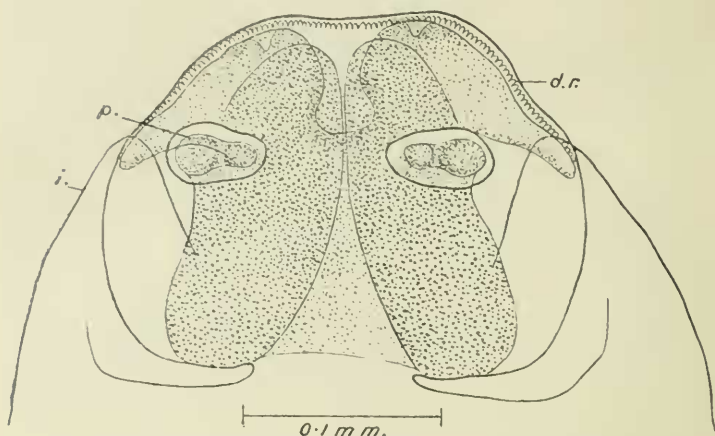
In a previous paper [Baylis (1920)] the writer gave a provisional list of species to be assigned to this genus, and indicated *P. ensicaudatum* and *P. semiteres* as distinct forms. The material available for the study of *P. semiteres* was very scanty at the time; but an opportunity having recently occurred, through the kindness of my friend Capt. R. Daubney, of examining new and well-preserved specimens from *Vanellus vanellus*, it seems desirable to give a brief note on the species. The opportunity has also been taken of comparing it with *P. ensicaudatum*, since there has been some doubt as to whether the two forms were not identical.

v. Linstow (1884) regards *Ascaris semiteres* as a synonym of *A. ensicaudata*, and gives an extensive list of hosts for this species in consequence. His figures (1881) seem to have been based on material really belonging to *P. semiteres*.

An examination of material from *Vanellus vanellus*, *Turdus merula* and *Sturnus vulgaris* shows that it includes two forms which, while possibly hardly more than subspecies, are nevertheless quite distinct and recognizable.

P. semiteres (Zeder, 1800), from *Vanellus*, differs from the rest of the material (*P. ensicaudatum*) in (1) the presence of

Fig. 3.



Porrocaecum semiteres. Dorsal lip, external aspect.

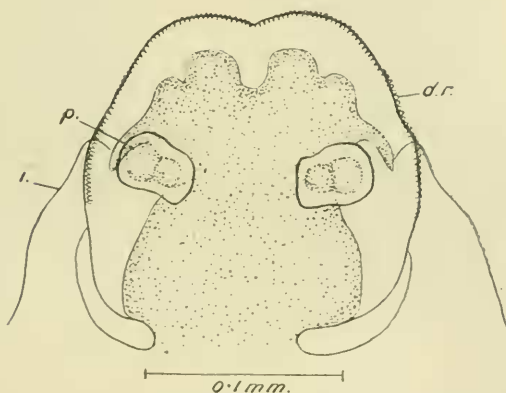
d.r., dentigerous ridge; *i.*, interlabium; *p.*, papilla.

conspicuous lateral cervical alæ; (2) the much better developed condition of the intestinal cæcum (see figs. 5, 6); (3) the much greater size of the lips in mature specimens (see figs. 3, 4); and (4) the length of the spicules of the male, those of *P. semiteres* measuring 0.77–0.8 mm., while those of *P. ensicaudatum* measure only 0.62–0.63 mm.

The shape of the pulp of the dorsal lip (figs. 3, 4) is very similar in the two forms. Each of the two main anterior lobes has an indentation in its outline, and sends out an outwardly and backwardly directed "horn." In both cases

there are deep grooves in the cuticle running from the interlabia to the base of each lip. The caudal papillæ of the male (figs. 7, 8) in every case agree in number and arrangement, and are found to be in accordance with the figure given by v. Linstow (1884). The figure given by Schneider (1866) for *Ascaris ensicaudata* is incomplete, the four small pairs of ventral postanal papillæ having been omitted. These are very minute and by no means easy to detect in some specimens. The number (eight) of pairs of postanal papillæ given by v. Linstow (1909) for "*Ascaris ensicaudata*" seems to be erroneous. In both forms the vulva divides the body nearly in the proportion of 2 : 3. There is no appreciable difference

Fig. 4.



Porrocaecum ensicaudatum. Dorsal lip, external aspect.

Lettering as in fig. 3.

in the arrangement of the female organs, and the eggs are of the same dimensions (about 0.1×0.075 mm.).

No difference could be detected between the material from blackbirds and that from starlings. As has been implied already, cervical alæ are absent in *P. ensicaudatum*. This is contrary to the statements of some authors (Zeder, Rudolphi, Dujardin), who have described what was presumably the same species, and this discrepancy is difficult to explain. In order to confirm this point, transverse sections, taken close to the head, of the two species were compared, and, while in

P. semiteres the ake stood out as prominent triangular structures in the sections, in *P. ensicaudatum* no such structures

Fig. 5.

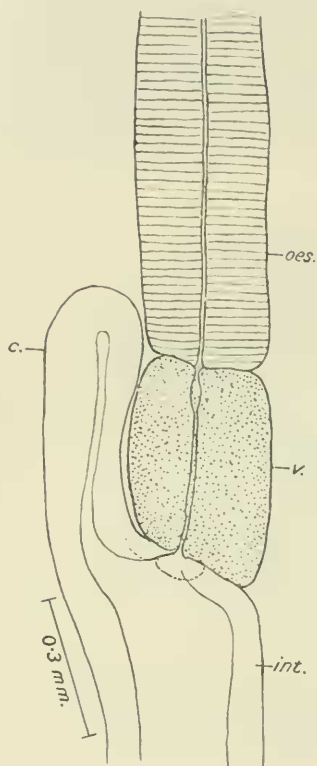


Fig. 6.

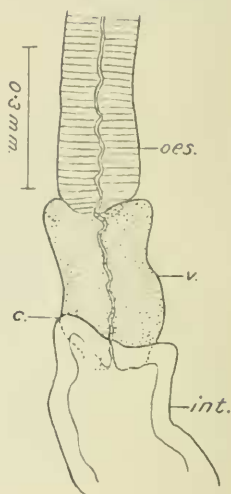


Fig. 5.—*Porrocaecum semiteres*. Posterior portion of oesophagus and anterior portion of intestine. c., intestinal caecum; int., intestine; oes., oesophagus; v., ventriculus.

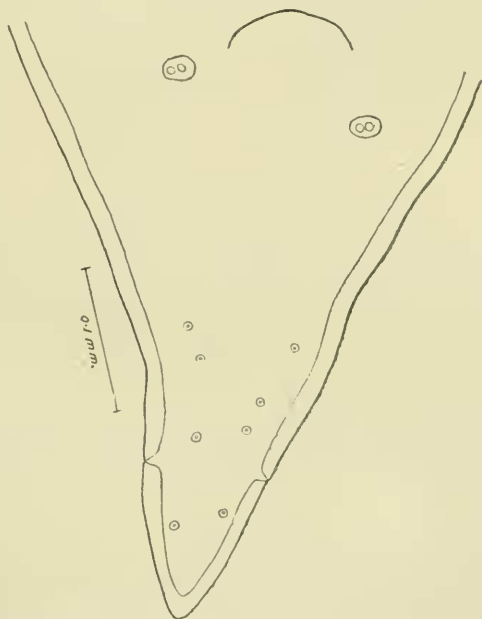
Fig. 6.—*Porrocaecum ensicaudatum*. Posterior portion of oesophagus and anterior portion of intestine. Lettering as in fig. 5 (in this case the caecum (c.) is rudimentary).

could be seen. In *P. ensicaudatum* also the intestinal caecum (fig. 6, c.) is usually quite rudimentary, and never appears to

equal or exceed the ventriculus in length, as it does in *P. semiteres* (fig. 5, c.).

As regards the nomenclature of these two species, that for which the name *ensicaudatum* has been used may or may not be identical with that named *Ascaris sturni* by Gmelin, 1790. The only indication of Gmelin's species is the mention of the host, but he regarded the form from the starling and

Fig. 7.



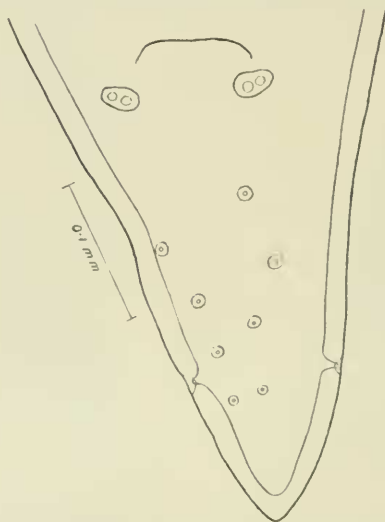
Porrocaecum semiteres. Tail of male; ventral view, showing postanal papillæ.

that from thrushes as distinct, giving them the names *sturni* and *turdi* respectively. If it could be definitely shown that the species *ensicaudata* and *sturni* are identical, then *sturni* would apparently have to be taken as the name of the species*. In view of the unsatisfactory definition of

* *Ascaris teres*, Goeze, 1782, is a collective species, and therefore inadmissible.

A. sturni, it seems advisable to retain the well-known name *ensicaudatum*. *P. heteroura* (Creplin, 1829) is in all probability a synonym of *P. semiteres* (Zeder, 1800), and not a distinct species.

Fig. 8.



Porrocaecum ensicaudatum. Tail of male; ventral view, showing postanal papillae.

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